INSTITUTE AND FACULTY OF ACTUARIES

EXAMINERS' REPORT

April 2021

Subject SP4 – Pensions and other Benefits Specialist Principles

Introduction

The Examiners' Report is written by the Chief Examiner with the aim of helping candidates, both those who are sitting the examination for the first time and using past papers as a revision aid and also those who have previously failed the subject.

The Examiners are charged by Council with examining the published syllabus. The Examiners have access to the Core Reading, which is designed to interpret the syllabus, and will generally base questions around it but are not required to examine the content of Core Reading specifically or exclusively.

For numerical questions the Examiners' preferred approach to the solution is reproduced in this report; other valid approaches are given appropriate credit. For essay-style questions, particularly the open-ended questions in the later subjects, the report may contain more points than the Examiners will expect from a solution that scores full marks.

The report is written based on the legislative and regulatory context pertaining to the date that the examination was set. Candidates should take into account the possibility that circumstances may have changed if using these reports for revision.

Paul Nicholas
Chair of the Board of Examiners
July 2021

A. General comments on the *aims of this subject and how it is marked*

1. The aim of the Pensions and Other Benefits Specialist Principles subject is to instill in successful candidates the ability to apply, in simple situations, the mathematical and economic techniques and the principles of actuarial planning and control needed for the operation on sound financial lines of providers of pensions or other employee benefits.

2. This subject examines the ability of candidates to apply core actuarial techniques and concepts, together with specific knowledge of pensions and other benefit arrangements to simple, but practical situations.

3. The Examiners therefore look for candidates to apply their knowledge of the Core Reading to the specific situation that the Examiners asked, having read the question carefully. Many candidates write around the subject matter of the question in more general fashion, or focus on one aspect of the issue at great length, in either case gaining few of the marks available.

4. Good candidates demonstrate that they have used their time well - an attempt to get a logical flow is a big advantage in making points clearly and without repetition. This also enables candidates to use the latter parts of questions to generate ideas for answers to the early parts (or use their solutions to earlier parts of questions to create a structure for latter parts). Time management is important so that candidates give answers to all questions that are roughly proportionate to the number of marks available. Candidates who give well-reasoned points, not in the marking schedule, are awarded marks for doing so.

B. Comments on *candidate performance in this diet of the examination.*

1. This was a well-balanced exam paper and well prepared candidates were able to score well and pass.

2. It is very important that candidates consider all aspects of the question, and read the preamble fully. By using all of the information available, candidates can ensure they give a full answer. Giving just a little more to clearly show depth can turn a close fail into a pass. The questions are set so that it should take approximately twice as long to answer a 10 mark question as a 5 mark one. Answers should therefore be similarly proportionate.

3. The questions that were least well answered in this paper were questions Q3(iii) and Q4(iii) relating to financing and Q6(iv) commenting on different funding methods. These were application and higher order skills questions and candidates generally lacked the breadth and depth of response required to score highly in these questions.

4. This was the first examination paper since the examination has been held online to include a calculation question. The marking scheme was relatively generous for this question to allow for it taking longer to type formulae rather than write them. There

was no indication that candidates had difficultly answering the question due to the examination being online.

5. Candidates are reminded to study the whole syllabus as all areas may be tested.

6. Candidates are reminded to pay attention to the command verbs and practice these types of questions as part of their preparation. A list of what is expected for each command verb is available on the IFoA website.

C. Pass Mark

The Pass Mark for this exam was 63.
178 candidates presented themselves and 74 passed.

Solutions for Subject SP4 – April 2021
Q1
(i)
Sponsor covenant is the ability and willingness of the sponsor [½]
to meet the funding requirements of the scheme i.e. to pay (or the ability of the trustees to require the sponsor to pay) sufficient contributions to ensure that the scheme's benefits can be paid as they fall due [½]
It is commonly categorised as strong, tending to strong, tending to weak or weak [1]
To these we might also add insolvent as a trivial fifth category [½]
Sponsors with a strong covenant are those where the pension scheme deficit on a particular basis is financially manageable, in that there is a reasonable likelihood of it being paid over an appropriate period [½]
Sponsors with a weak covenant are those where the deficit is financially unmanageable given the resources of the sponsor and there is no realistic likelihood of removing the deficit within an appropriate timescale [½]
[Marks available 3½, maximum 2]

(ii)
The sponsor's covenant is not an important issue if either the reliance of the scheme on the sponsor covenant can be treated as certain [½]
or if it is clear that the scheme will not need to rely on the future support of the sponsor [½]
Examples include:
- the scheme is very well-funded, therefore no reliance is placed on the sponsor [½]
- the sponsor covenant is strong enough to be deemed as certain, e.g. the State [½]
- the sponsor covenant is so weak as to be deemed nil [½]
- the sponsor has no further liability - e.g. benefits are fully insured [½]
- in the event of insolvency a protection fund is available which meets the benefits in full [½]

[Marks available 3½, maximum 2]

(iii)
To assess if the scheme is very well funded ask the actuary for an estimate of the valuation results such as funding and buy out positions [½]
Get a high level indication of the strength of the covenant so as to check if it is clearly very strong or very weak. For example by using: [½]
- financial metrics

- credit ratings
- quantitative analysis using accounting data
- implied market default risk;

[credit was awarded for any two valid examples, ½ mark each, maximum 1]
Or refer to recent covenant reports, provided circumstances have not significantly changed [½]
Check scheme documentation / seek legal advice to establish if the sponsor has no further liability [½]
[Total 6]

This was a straightforward question with most candidates scoring well in parts (i) and (ii).

Part (iii) was less well answered. Those who scored well in part (iii), linked their answer back to the scenarios described in part (ii) and picked up on the circumstances of the question which requires the managers and their advisers to use information available to them.

Some candidates provided a list of ways to assess covenant in their response to part (iii), many of which were not appropriate to the circumstances described in the question. Candidates are reminded to ensure they read the question carefully to ensure they provide an appropriate response.

Q2
(i)
Core reading definitions:
Actuarial Surplus (deficit): The difference between the Actuarial Value of Assets and the Actuarial Liability [½]
Deficit: Where a scheme has assets less than required by the funding plan for meeting the liabilities [½]

(ii)
Changes to ongoing employer contributions amount or rate [½]
Changes to lump sum employer contributions [½]
Changes to recovery period [½]
Changes to member contribution rates [½]
Changes to levels of existing member benefits [½]
Member incentive exercises [½]
Changes to option values [½]
Changes to range of benefits provided, e.g introduction of new benefits [½]
Treatment of discretionary benefits [½]
Close the scheme to new members [½]
Close the scheme to accrual [½]
Refund of surplus [½]
No action – use surplus as a buffer to adverse experience [½]
Use surplus to fund purchase of annuities [½]

Review the investment strategy, for example to take more risk in the expectation of greater returns to remove a deficit [½]
Change funding target, for example target self sufficiency which will disclose a higher deficit [½]
Review the funding approach, such as using a different funding method or basis to change the deficit disclosed [½]
[Marks available 8½, maximum 4]

(iii)
Previous valuation results [½]
Cashflows over the period including:

- Investment income [½]
- Benefit outgo [½]
- Contribution income [½]

Current asset values [½]
Any significant events such as scheme closure [½]
or benefit changes [½]
Any changes in legislation that may affect the next valuation [½]
For example changes in how the funding basis is set [½]
Any significant changes in membership [½]
For example a redundancy exercise [½]
or large transfers out of the scheme [½]
Market data to derive a basis [½]
For example yields on government bonds [½]
Any changes to valuation approach, for example the use of greater prudence to reflect weakening covenant [½]
[Marks available 7½, maximum 3]

(iv)
Different financial or demographic experience to that expected:

- Life expectancy [½]
- Investment return [½]
- Pension increases / salary increases / inflation [½]

[Maximum 1 mark was given for two other distinct experience items]

- Retirements or withdrawals [½]
- Promotional salary increases [½]
- New entrants [½]
- Exercise of options [½]

Unanticipated events [*maximum 1 mark was given for any two distinct relevant examples]*

- Increase in administration costs, advisor fees or levies [½]
- Contributions not received – e.g. due to employer insolvency [½]
- Insurer default on any insured benefits [½]
- Any changes to benefits or scheme closure with all active members becoming deferred pensioners [½]
- Changes in legislation – for example requirement to provide minimum level of pension increases, or restrictions on surplus removal [½]

The use of a funding method which generates surplus, such as the Attained Age Method [½]
[Marks available 6½, maximum 3]

(v)

Advantages:

This should help to ensure that pension schemes are fully funded and provide secure benefits to members [½]
And reduces reliance on central discontinuance fund [½]
It is relatively for the regulator to check compliance [½]
It is also a relatively simple concept to communicate to stakeholders [½]
It may drive a simplified benefit structure without large amounts of guarantees and options [½]
A 4 year review period is frequent enough to provide regular updates but not to often too cause a large burden on schemes [½]
Actions taken to reduce surpluses may increase member benefits [½]
or increase benefit security (e.g. purchase of insurance) [½]
For example through discretionary increases [½]
May encourage a closely matched strategy, reducing risk [½]
May encourage a better governance, such as a more rigorous funding approach and a better understanding of how surpluses and deficits arise [½]

Disadvantages:

In practical terms it is very difficult to implement [½]
Experience over the inter-valuation period may make it very unlikely that the target is achieved [½]
Actions to remove the surplus / deficit may be impractical [½]
The effectiveness depends on the strength of the actuarial basis used to calculate the liabilities, without any rules around this there is a risk that the system is 'gamed' [½]
Monitoring compliance will take time and cost money for the Regulator and the Scheme Managers [½]
Punishments for non-compliance could punish failing schemes [½]
The level of compliance needed may lead to sponsors walking away from pension schemes [½]
Elimination of surpluses does not allow for maintaining a cushion against future adverse experience [½]
May lead to other perverse outcomes such as a reduction in contributions where a scheme is in surplus (to bring the funding level down to 100%) [½]
Companies could incur tax if forced to take a refund [½]
Regulator can't easily compare security between different as funding basis isn't prescribed [½]
May encourage the use of best estimate assumptions to reduce the likelihood of experience gains / losses which reduces security compared to a more prudent approach [½]
The lack of flexibility in employer contributions may result in sponsor insolvency [½]
It could result in volatile contributions requirements which could be difficult for business planning [½]
[Marks available 12½, maximum 5]
[Total 16]

Parts (i), (ii), (iii) and (iv) were well answered.

For part (i) any clear explanation of the terms based on the definitions in the core reading were credited. It was not necessary to provide the exact definitions per the core reading to gain the marks.

For part (iii) some candidates failed to recognise that an estimate was requested, and described a full valuation process. This led to a longer answer and one which generally did not score as well. Candidates are reminded to read the question carefully so they provide an appropriate response.

For part (v), many candidates did not provide sufficient depth for the marks available.

Part (v) was less well answered. A broad range of ideas was required to score well.

Q3

(i)

Data will be required in respect of individuals who have an entitlement to receive a benefit in the future (actives) [½]

Data will be required in respect of individuals who have an entitlement to receive a benefit in the future (actives and deferreds) [½]

and also individuals who are currently receiving benefits for which future payments from the scheme may be required (pensioners) [½]

The data will need to be sufficiently detailed to provide all information that is likely to be financially significant to the level or timing of future benefits in comparison to the use of a more general assumption [½]

For example, if a pension is to be provided, the age of the individual will be significant as it will help to indicate when the benefit may become payable and when it may cease to be payable [½]

However, if a pension were also to be paid to a spouse after the death of the member, the existence and age of a spouse of a young member may not be financially significant because the marital status of the member may change in the future [½]

The data required depends on the type of DB scheme, for example current salary information for a final salary scheme [½]

The data required depends on the benefit structure, for example an indicator of whether thepension is for a member or a dependant may be required where dependants' benefits are available on death [½]

Data required may include *[maximum 2 marks were given for up to 4 valid and distinct data items - no credit was given for name or national insurance number due to privacy point]*

- Date of birth [½]
- Date joined scheme [½]
- Unique Identifier [½]
- Current accrued pension / pension in payment [½]

Any equivalent data used when previously valuing benefits will be useful to the actuary because it will enable reconciliations to be performed that help to indicate the validity of the current membership data. [½]

Other available data such as employment data may also help in this process. [½]

When requesting and handling the data, the actuary should be mindful of data privacy since that data will often include items of personal or sensitive data [½]
Steps may be taken to ensure that data is not identifiable to an individual (for example by using a scheme generated unique identifier and not a social security number for referencing, and not including a member's name in the data), and to ensure the safe, secure transmission of data [½]
It may be appropriate to use summarised data instead of detailed membership data [½]
[Marks available 8½, maximum 5]

(ii)
Data checks may include:
a reconciliation of the total number of members and changes in membership, using previous data and accounts [½]
checks for the existence of new members – an absence may indicate an omission [½]
comparison of average benefits levels, or of average values of components of the benefit calculation (e.g. past service, salary), with previous data and accounts [½]
consistency between salary-related contributions and in-payment benefit levels indicated by membership data and the corresponding figures in the accounts [½]
minimum and maximum levels for benefits, their components, ages, etc [½]
random spot checks on data for individual members [½]
[Marks available 3, maximum 2]

(iii)
<u>Security:</u>
The current unfunded promise provides no security in itself [½]
although is secure by virtue of the State promising the pension is assured of continuing existence [½]
as long as country A has a good credit rating [½]
Providing a funded scheme provides an additional level of security if the fund covers the liabilities accrued [½]
The level of security depends on the prudence of the funding plan and the riskiness of the investments held [½]
A funding method with a faster pace of funding, such as lump sum in advance, all else being equal, will provide greater security than one with a slower pace of funding, such as terminal funding [½]

<u>Stability:</u>
Advance funding can allow the State to pay for pension benefits still accruing gradually, and in a stable manner [½]
However, the various methods of calculating advance contributions do not all produce stable contributions [½]
The stability of the contribution rate (expressed as a percentage of members' salaries) will depend on the assumptions made being borne out in practice [½]
Pay-as-you-go (PAYG) may produce a stable level of outgo if the level of the benefit is relatively uniform amongst the beneficiaries and the age of retirement does not vary significantly between individuals [½]
The population of the scheme is likely to be relatively small and so any method is likely to produce instability in the contributions required [½]
The State may be able to adopt a stable approach to meet the initial deficit [½]

Effect of increasing age of membership (duration):
Due to the closure of the oil rigs, it is likely that the membership will have few new entrants and the membership will start to age [½]
Under PAYG the effect of increasing average age will be to increase the number of beneficiaries relative to the number of active members in the long term, and if these members contribute their contributions will fall [½]
Whether an advance funding method can deal with an increasing average age will depend upon the precise method adopted [½]
Methods with a faster pace of funding (such as lump sum in advance) are likely to better cope than those with a slower pace of funding (such as terminal funding) [½]

Realism:
PAYG can give rise to an unrealistic impression of pension costs in the short term [½]
Methods where funding is based on accrual, such as regular contributions, possibly provide more realism [½]
Advance funding can provide for a realistic cost of pension benefits. Again, this depends on the method of advance funding [½]
Meeting the initial deficit may appear expensive [½]

Liquidity:
PAYG depends on the contributions flow or source of income. As the membership will be closing to new entrants when the rigs close down any contributions from active members will cease and other sources of financing will need to be found [½]
Advance funding provides good protection against cash flow problems provided that the assets held are marketable, produce cashflows when required, or if there is an adequate contribution flow [½]
A move to funding in advance creates an initial deficit as no assets are currently held to back accrued liabilities [½]
This initial deficit may require substantial funding compared to the funding of ongoing accrual (which will cease within 5 years) [½]
Large concentration risk if there is a fire on the rig – it might be worth insuring DIS and/or IH benefits to prevent / reduce liquidity issues [½]

Opportunity cost:
State will need to find a source of funds to meet initial deficit and ongoing accrual and assess the opportunity cost of using them for this purpose [½]

Impact of relative rates of return**:**
From a country's point of view the choice about whether or not to fund a national scheme should compare the macroeconomic effects of funding and not funding the scheme [½]
Funding with investment in the private sector does not automatically create greater economic growth [½]
Funding also creates a need to disinvest funds when the demographic balance leads to benefit outgo in excess of contribution income [½]
If the funding had created economic growth, arguably this disinvestment could lead to economic decline through a lack of capital for investment [½]

Flexibility:
Under PAYG the contribution requirements are inflexible [½]
Advance funding can provide some flexibility, particularly in meeting the initial deficit [½]

Which could help the State in managing its budget [½]

[Marks available 27 ½, maximum 8]

[Total 15]

Parts (i) and (ii) of this question were generally well answered, although a surprising number of candidates were not able to describe the membership data needed for a valuation and did not score well on part (i). Many candidates just listed data items and did not provide the descriptive elements which the question required. Very few candidates described the categories of membership nor commented on data protection.

Part (iii) was less well answered with many candidates unable to describe the features of the financing strategy and tailor their response to the question sufficiently to score well. Those candidates that structured their answer around the criteria in deciding on a financial strategy generally did better than those that didn't, however candidates that just provided generic comments around the criteria did not score as well.

Q4

(i)

Sponsor objectives *[maximum of 2 points credited]*

- Objectives and cost in designing, setting up and running the scheme [½]
- Needs of the employees [½]
- Competitor schemes within industry [½]

Contributions *[maximum of 4 points credited]*

- Company contributions to be paid to the scheme [½]
- Allowance for matching employee contributions [½]
- Including any minimum or maximum [½]
- Employee contribution rates ‑ level and/ or structure (matching etc.) [½]

Governance *[maximum of 2 points credited]*

- Allowance for any legislative requirements [½]
- Taxation requirements [½]
- Trust or contract based [½]
- Administrative requirements [½]
- Governance arrangements [½]

Benefits and eligibility *[maximum of 4 points credited]*

- Level and form of benefits which can be taken from the scheme – cash, annuity ordrawdown [½]
- Provision of protection benefits [½]
- Integration with state benefits [½]
- Integration with other benefits – e.g. as part of a flexible benefits package [½]
- Eligibility criteria [½]

Investment *[maximum of 4 points credited]*

- Investment options (range of funds) to be offered to members [½]
- Provision of a default fund [½]
- Lifestyling [½]
- Level of charges on investment funds and how these will be met [½]

[Marks available 8, maximum 5]

(ii)

Advantages to the company:

More stable contribution expected compared to current DB [½]
Potential cost savings if DC scheme is inferior to DB scheme [½]
and the rate of turnover at the company as employees in the DB scheme are replaced by new employees in the DC scheme [½]
Reduced risk for company from new joiners [½]
longevity, investment and inflation [½]
It may be easier for members to understand the value of their benefits in a DC scheme [½]
although it may be easier for members to understand the amount of their benefits in a DB scheme [½]
greater member engagement [½]
If DC scheme is set up as contract based arrangement or via a section of a larger Trust (a Master Trust, in UK terminology) there will be less oversight required from the company and therefore lower costs [½]
No industrial relations issues from existing workforce as membership of DB scheme continues [½]

Disadvantages to the company:

May struggle to attract new staff [½]
especially if competitors offer DB [½]
As keeping DB scheme open to existing employees, the pension risks faced by the company will not significantly change in the short term [½]
New joiners unhappy as colleagues retain DB benefits [½]
as potential lower benefits than their colleagues [½]
leading to two-tier workforce and potential trade union disputes [½]
and potential reputational damage [½]
Difficult to ensure needs of new joiners are met in a DC scheme [½]
Two schemes to run instead of just one [½]
increasing cost and complexity of administration [½]
especially if under a different trust to the DB scheme or contract based [½]
but potentially fewer legislative requirements to meet under DC than DB [½]
The company will incur costs to set up the DC scheme [½]
Manpower planning may be more difficult, for example any cost for enhancement to benefits on redundancy may need to be met immediately in a DC scheme [½]
DB scheme managers might interpret the move to DC as a covenant issue and ask for higher contributions, particularly if the DC scheme is inferior to the DB. [½]

[Marks available 12½, maximum 8]

(iii)

The guarantee is defined benefit in nature [½]
But the scheme is DC, so will need to set regular contributions to be paid to the scheme [½]
Meaning the scheme is funded in advance with regular contributions [½]
Consider whether to finance the guarantee on an unfunded or funded basis [½]

If the guarantee is funded there are a variety of financing methods which could be used [½]
The arguments for a funded approach become greater the more likely the guarantee is to bite [½]
due to security and liquidity concerns as the size of the liability becomes more significant [½]
and the greater the concentration of risk [½]
as the timing of meeting the guarantee can be inopportune for the company and cause liquidity and opportunity cost issues [½]
The company may want to check periodically that the funds are sufficient to meet the DB guarantee by performing regular valuations [½]
And provide additional contributions if required [½]
Alternatively the check could be done on an individual basis at retirement age with additional funding supplied at the time – a terminal funding approach [½]
Due to the investment fluctuations there is a risk of over-funding the scheme if additional contributions are paid before retirement [½]
So the second approach may be preferred [½]
Additional contributions are likely to be held in a general account rather than allocated to individual member pots [½]

<u>Likelihood of biting:</u>
Depending on the generosity of the regular contributions the guarantee might not be expected to bite [½]
E.g. 30% regular contributions are likely to be sufficient to provide a benefit larger than $1/120^{th}$ [½]
But there is the risk that they don't – the company will bear the risks of the underpin benefit [½]
The company should consider doing some stochastic modelling to establish the likelihood of the guarantee biting for their chosen contribution rate [½]
The company should consider restricting members' investment choices to avoid investment in very high risk funds [½]
So as to avoid moral hazard or members gambling with their pension knowing that they have a guaranteed minimum [½]
Although the minimum amount is unlikely to be sufficient to provide a good level of income in retirement, so should dissuade a member from making overly risky choices (i.e. NRR of 30% for 40 years of service) [½]
The company should consider a lifestyling period to reduce volatility of return near retirement [½]

<u>Concentration of risk:</u>
The guarantee is more likely to bite when there is a market crash, and may then bite for many people [½]
and as such a time the company may be less able to meet the cost if the guarantee is unfunded [½]
and as such a time the company may be less able to meet the cost if the guarantee is unfunded [½]

<u>Other:</u>
Insure the guaranteed benefit, subject to availability and reasonable cost [½]
[Marks available 13½, maximum 6]
[Total 19]

Part (i) was straightforward and most candidates scored full marks.

For part (ii) candidates who scored well were able to generate a number of distinct points.

Part (iii) was less well answered. This was a 'discuss' question and candidates did not generally provide a sufficient breath of points to score well. Many candidates described different financing methods in a generic fashion and did not tailor these to the scenario. Very few candidates commented on the likelihood of the underpin biting or the concentration of risk.

Q5
(i)
Such an option may help the scheme to reduce risks, particularly inflation risk [½]
Depending on the reason for offering the option, the level of uplift may be chosen so that take-up of the option may lead to higher or lower expected costs [½]
The company share any expected savings with the member generating goodwill [½]
The revised benefits might be cheaper to administer or buy out [½]
If offered as part of a flexible benefits package, the flexibility may be valued by members [½]
[Marks available 2½, maximum 1]

(ii)
The main factors to take into account when setting appropriate terms for member options are:
The provisions in the benefit scheme's documentation [½]
Any member expectations from previous communications [½]
The relative value of the option compared to the expected cost of providing the 'regular' benefit [½]
Whether to evaluate the option on a market related basis or some other basis. [½]
The scheme's investment strategy [½]
The security or remaining benefits once the option has been exercised and of remaining beneficiaries following the option being exercised [½]
Fairness to other beneficiaries [½]
Regulatory and legal requirements [½]
Selection risk [½]
Standard option for future pensioners should consider member expectations and the ease by which terms may be changed in future [½]
Other factors *[credit was given for a maximum of 2 additional factors below]*

- whether consent is being sought [½]
- treatment of discretionary benefits [½]
- simplicity of administration / understanding / planning [½]

- impact of tax [½]
- the desire to encourage (incentivise) or discourage take up [½]
- consistency – eg over time or with setting of other factors [½]
- impact on funding [½]
- basis: should the option be cost -neutral or funding neutral? [½]
- likely take up rate. [½]

[Marks available 9½, maximum 3]

(iii)
General points:
The extent of the risk depends on the take up of the option [½]
Conversely if take up is low there is a risk that the anticipated benefits from offering the option do not materialise [½]
The cost of the exercise may be greater than the benefits delivered by the exercise [½]

Considerations for the sponsoring employer and scheme managers:

Financial risk – the cost of this option might be greater than the expected cost of the option [½]

This might be because of:

- inappropriate conversion terms being set, or [½]
- experience e.g. members life expectancy being lower than expected (or other relevant example) [½]
- the cost of the running the exercise being larger than expected [½]

Selection risk:

- a greater proportion of members in poor health may exercise this option [½]
- receiving a higher benefit than they otherwise would have and reducing any mortality gains that may have resulted if the option had not been taken [½]

The above financial and selection risks :

- could lead to a deterioration in the funding level [½]
- or an additional contribution requirement from the sponsor [½]

Reputational risk:

- if members' experience is not positive there is a risk of complaints [½]
- if members' expectations are not met, there is a risk of complaints [½]
- For example if communication material is not clear and members look back in a few years' time and feel they did not make an informed decision. [½]
- members need to fully understand the implications of taking up the option – there is a risk that the information provided to members was inadequate and redress payments may be required [½]
- scheme managers may come under scrutiny if members seek redress for losses [½]

Legislative risks:

- legislation or regulator guidance may change requiring a change in approach or limiting the scope of the exercise [½]

Considerations for the scheme managers:
<u>Investment risks:</u>

- liquidity – cash outflows are immediately increased which may cause liquidity problems, particularly if this option is extended to all pensioners currently receiving a pension [½]
- mis-matching – the profile of the expected cashflows from the scheme will change, which is likely to invalidate any matched investment strategy and lead to mis-matching risk [½]

<u>Funding risk:</u>

- introducing this option as a retirement option is an additional area of uncertainty in funding the scheme and increases funding risk [½]

<u>Administration risks:</u>

- the risk of having insufficient resource or systems to correctly administer the change in benefits in a timely way [½]

Considerations for the sponsoring employer:
<u>Governance risks:</u>

- the scheme managers may object to the option and may have the power to prevent it or set different terms [½]

[Marks available 11, maximum 5]

(iv)
<u>Mitigation of risks</u>
<u>To mitigate the risk of poor take up:</u>
The membership could be consulted in advance to determine the likely take up rate and whether it is worth introducing this option [½]
Modelling could be undertaken to understand the required take up for the sponsoring employer or scheme managers' objectives to be met [½]
Terms may be set to be advantageous to members if the sponsoring employer wishes to encourage take up [½]
in order to reduce the inflation and longevity risk of the scheme [½]

<u>Mitigate financial risk by inappropriate terms being set by:</u>
Terms may be set to be cost neutral [½]
including the additional administration costs and expenses of the option [½]
to minimise longevity, inflation and investment risks [½]

Terms may be set to be advantageous to the scheme – so that if experience is as expected there is a gain [½]
which may provide a cushion against adverse experience [½]
but might reduce option take up [½]
Require terms to be set by a qualified actuary [½]
consider using market related terms [½]
but balance frequency of review with additional administration and communication required [½]
and impact on member retirement planning [½]
apply smoothing to the option terms to lower administrative complexity and cost [½]

<u>To mitigate financial risk caused by experience:</u>
Monitor experience [½]
of take up (feed back into funding assumptions) [½]
of inflation and investment return [½]
and of longevity, but note that credible experience won't emerge for many years [½]
adjust terms if necessary [½]

<u>To mitigate financial risk, cost of exercise being larger than expected:</u>
Set budgets in advance and monitor [½]

<u>To mitigate selection risks:</u>
Require member to provide evidence of health or undergo underwriting to access the option [½]
this will increase admin costs [½]
and may deter members / lower take up [½]
Sponsoring employer and/or scheme manager consent could be required before the option is exercised in order that consent can be refused to those seeking to select against the scheme. [½]

<u>To mitigate reputational risks:</u>
Provide members with access to an independent adviser [½]
and pay the for the cost of financial advice [½]
Ensure communication of the option is clear and transparent [½]
Provide education to members on the option via seminars or other media [½]
Exclude vulnerable members (e.g. age those over 80) from the exercise [½]
Ensure members are given sufficient time to make a decision [½]
Follow any available regulatory guidance in implementing this option [½]
To mitigate legislation risks:
Consult with the State and any regulators on any potential legal/ guidance changes so action can be considered to mitigate legislative risk [½]

<u>To mitigate investment risks:</u>
Review investment strategy making allowance for the new option [½]
increase liquid assets [½]
reduce inflation linked assets [½]
Phase any exercises to make the option available to current pensioners over time to help manage liquidity risks [½]

<u>To mitigate funding risks:</u>
In placing a value on the options when monitoring the scheme, it may be appropriate to use prudent assumptions [½]
This may, however, build too much caution into the valuation [½]
Significance of this will depend on maturity of the scheme [½]
and take up of the option [½]
<u>To mitigate administration risks:</u>
Ensure the impact on administration processes and resources in built into the project planning [½]
Ensure administration staff are trained appropriately [½]
with checking / reviewing processes in place [½]

<u>To mitigate governance risks relating to scheme managers objective the arrangement or setting different terms:</u>
Sponsoring employer should consult with the scheme managers concerning the introduction of this option [½]
to avoid the scheme manages preventing, changing or criticizing the option [½]
[Marks available 23, maximum 11]
[Total 20]

Parts (i), (ii) and (iii) were generally well answered. Despite scoring well in part (iii) many candidates struggled to produce a sufficient number of points for part (iv) to score well. This was a 'discuss' question and candidates are reminded to pay attention to the command verb to guide them in structuring their response. Many candidates did not provide sufficient depth in their response in this part.

Q6
(i)
The aim of an accrued benefits method is to target a given level of cover of benefits accrued to date [1]
The Actuarial Liability for members is based on pensionable service accrued up to the valuation date [½]
or the end of the control period as appropriate [½]
Contribution level may vary to meet the target actuarial liability [½]
[Marks available 2½, maximum 2]
(ii)
Actuarial Liability:
Actives: $12 \ x \ \frac{1}{60} \ x \ 10 \ x \ \left(\frac{1.025}{1.03}\right)^{25} \ x \ 18 = 31.9$
[1 mark for correct formula, 1 for numerical value]
Deferreds: $10 \ x \ \left(\frac{1.02}{1.03}\right)^{15} \ x \ 18 = 155.5$
[1 mark for correct formula, 1 for numerical value]
Pensioners: $15 \ x \ 15 = 225.0$
[½ mark for correct formula, ½ for numerical value]
Total: 412.4 [½]

Assumptions:
- Assume no pre retirement decrements [½]
- Assume no salary averaging at retirement [½]
- Assume 1 year control period for Standard Contribution Rate [½]
- Assume contributions are paid annually in arrears [½]

$$SCR = \frac{12 \ x \frac{1}{60} \ x \ 1 \ x \left(\frac{1.025}{1.03}\right)^{25} x \ 18}{12a_{\overline{1}|0.5\%}} = 26.7\%$$

[SCR is 26.6% if contributions are assumed to be paid continuously]
[1½ mark for correct formula, 1 for numerical value]
[Marks available 10, maximum 9]

(iii)
Actuarial Liability:

Actives: $12\ x\ \frac{1}{60}\ x\ 10\ x\ \left(\frac{1.02}{1.03}\right)^{25}\ x\ 18 = 28.2$

[1 mark for correct formula, 1 for numerical value]

Deferreds: $10\ x\ \left(\frac{1.02}{1.03}\right)^{15}\ x\ 18 = 155.5$ unchanged [not needed to repeat the calculation to obtain the mark] [½]

Pensioners: $15\ x\ 15 = 225.0$ unchanged [not needed to repeat the calculation to obtain the mark] [½]

Total: £408.7 [½]

Assume 1 year control period for Standard Contribution Rate [½]
Assume contributions paid annually in arrears [½]

$$SCR = \frac{12\ x\ \frac{1}{60}\ x\ 1\ x\ \left(\frac{1}{1.03}\right)^{25}\ x\ 1.02^{24}\ x\ 1.025\ x\ 18 + 28.2\ x\ \left[\frac{1.025}{1.02} - 1\right]}{12a_{1]0.5\%}} = 24.9\%$$

[SCR is 24.8% if contributions are assumed to be paid continuously]

[1 ½ mark for correct formula, 1 for numerical value]
[Marks available 7, maximum 5]

(iv)
General points:
The funding method does not directly affect the cost of the scheme but impacts on the pace of funding [½]
CUM usually targets a lower AL than the PUM and therefore is expected to have a slower pace of funding [½]

(a)
<u>Sponsoring employer considerations:</u>
CUM gives a lower contribution rate [½]
at least initially [½]
but will increase significantly as membership ages [½]
as closed to new entrants [½]
PUM contribution rate will rise too, but increase isn't as large [½]
hence CUM gives less stable contribution rate [½]
May be better for company accounts to declare the lower liability and contribution rate under CUM [½]
but if accounting funding method is prescribed there may be no change [½]
CUM is better for opportunity cost initially but worse as rate rises [½]
Lower actuarial liability compared to projected unit method [½]
as salary increase assumption higher than revaluation assumption [½]
So lower deficit than under projected unit method (if any) [½]
A lower funding target may mean more risk can be taken in the investment strategy leading to higher expected returns and a lower cost [½]

So lower deficit recovery contributions are required [½]
may want to build up fund in excess of actuarial liability given expected future increases in contribution requirements [½]
Alternatively, the disclosure of a larger surplus may result in member pressure to improve benefits [½]

(b)
<u>Scheme manager considerations:</u>
Still accrued funding method so still targeting accrued benefits [½]
Only allows for current salaries [½]
so lower actuarial liability [½]
by 3.7m (or based on figures calculated) [½]
hence lower funding target (deficit) if any [½]
The change is only in respect of the employee liabilities, which are a small proportion of the overall liability [½]
CUM is less prudent [½]
and provides less security given lower prudence [½]
Cashflow implications as contributions lower than under project unit method [½]
by 1.8%p.a. (or based on figures calculated) [½]
Such as a greater potential for negative cashflow and assets needing to be realised to meet benefits [½]
Managers may be willing to accept a lower contribution rate now if jobs are at risk or employer insolvency is the alternative option [½]
Greater reliance on continued existence of sponsor and strong longer term covenant as future contribution rates are expected to increase significantly [½]

[Marks available 15½, maximum 8]

[Total 24]

Part (i) was generally well answered.

Candidates were generally able to perform the calculations in this question well, with part (ii) on the Projected Unit Method being better answered than the equivalent calculations in part (iii) for the Current Unit Method. Some candidates omitted to calculate the actuarial liability for deferred pensioner and pensioner members, missing out on those marks. The Standard Contribution Rate for the Current Unit Method was the calculation which was less well understood. A number of candidates used the total liability, rather than the liability in respect of the active members, in the calculation of the Current Unit Method Standard Contribution Rate.

For part (iii) some candidates did not follow the instruction in the question to include revaluation of deferred benefits. Limited credit was given for such responses.

The solution in this report is based on particular assumptions. Alternative solutions which used different assumptions, such the timing of contributions or the length of the control period, were equally acceptable. Candidates are reminded to set out their assumptions.

Part (iv) was less well answered with many candidates failing to write enough points to score well.

[Paper Total 100]

END OF EXAMINERS' REPORT